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ABSTRACT

This study examined the influence of male teachers on the development of 4-year-old, middle-class children, with emphasis on the development of boys. The subjects were 55 boys and 54 girls in 13 nursery classes, taught by teams containing either two female teachers or one male and one female teacher. Pre- and post-tests were administered to measure the children's sex identification and mathematical achievement. The post-test battery also evaluated the children's school enjoyment, self-confidence, and classroom behavior. Boys taught by teams containing a male teacher had higher mathematical achievement than boys taught by teams with only female teachers. In addition, both boys and girls with a male teacher were rated more favorably by both male and female members of the teaching team than were students taught by all-female teaching teams. The sex of the teacher was not related to the children's gender identity, self-confidence, or school enjoyment. Results were interpreted as providing some support for the assertion that the sex of the teacher is an important influence on nursery school children's behavior and mathematical achievement. (Author/BD)

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Male Teachers and the Development of Nursery-School Children[1]

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Running Head: Male Teachers

Abstract

This study examined the influence of male teachers on the development of four-year-old, middle-class children, with emphasis on the development of boys. The subjects were 55 boys and 54 girls in 13 nursery classes, taught by teams containing either two female teachers or one male and one female teacher. Pre and post-tests were administered to measure the children's sex identification and mathematical achievement. The post-test battery also evaluated the children's school enjoyment, self-confidence, and classroom behavior. Boys taught by teams containing a male teacher had higher mathematical achievement than boys taught by teams with only female teachers. In addition, both boys and girls with a male teacher were rated more favorably by both male and female members of the teaching team than were students taught by all-female teaching teams. The sex of the teacher was not related to the children's gender identity, self-confidence, or school enjoyment. The results were interpreted as providing some support for the assertion that the sex of the teacher is an important influence on nursery school children's behavior and mathematical achievement.

Male Teachers and the Development of Nursery-School Children

It has often been claimed that greater numbers of male teachers are needed at the early educational levels to facilitate the development of boys (Bernard, 1966; Fagot & Patterson, 1969; St John, 1932, Vairo, 1968). According to Sexton (1969) female teachers are biased against male students and have expectancies of student behavior that are more congruous with feminine behavior than masculine. For example, Goebes and Shore (1975) found that teachers considered girls to be closer to the ideal than boys on a sloppy-neat continuum and other preferred qualities. Such bias and incongruous expectancies are thought to cause masculine-identified boys to rebel against the school system and consequently to devalue academic achievement (Sexton, 1969). Fagot and Patterson (1969) suggest that male teachers would defeminize the milieu at the early school years and reinforce masculine behavior in boys rather than feminine ones, thus facilitating sex identification in boys (Vairo, 1969) and enabling them to develop their academic potential more fully (Smith, 1970).

One study examining the relation between the sex of the teacher and preschool children's performance (Brophy & Laosa, 1971) found that boys and girls taught by a female teacher scored lower on spatial ability, though this effect was unique among the variables studied and could not be replicated. Although Brophy & Laosa conclude that beneficial effects are attributable to the presence of male teachers, they also conclude that these effects are of relatively minor importance on children's development.

There are theoretical justifications for asserting the importance of male

teachers on children's development. Social learning theory (Mischel, 1970) predicts that the presence of male models should facilitate the imitation of masculine behaviors by boys, while cognitive-developmental theory (Kohlberg, 1966) predicts that boys should value the behavior and characteristics of male rather than female teachers, and consequently are more likely to incorporate their male teachers' academic behavior and values as their own.

This study was designed to examine the variable of teacher sex in relation to the academic achievement, sex-role development and classroom behavior of children. Specifically, it was predicted that boys taught by male teachers would show greater development of mathematical aptitude than boys taught by female teachers inasmuch as the development of mathematical ability in boys has been found to be associated with contact with fathers (Kuckenberg, 1963; Reis & Gold, 1977) and with fourth and fifth-grade male teachers (Shinedling & Pederson, 1970; Smith, 1970). Secondly, since the early years are critical for the development of sex identification (Lynn, 1969) it was predicted that the presence of male nursery-school teachers would facilitate masculine sex identification of nursery-aged boys. It has been argued that male teachers would expect and reinforce behavior more congruous with the boys' actual behavior than do female teachers. Consequently, male teachers should rate the behavior of boys more favorably than female teachers and boys with male teachers should have greater self-confidence and school enjoyment.

This study primarily focuses on boys since most of the speculations on sex bias in the early school years have been concerned with the harmful effects

on boys of female teacher predominance; however, the performance of girls will also be examined. Finally, the teachers' sex-role orientation will be examined to determine if this is a variable relevant to the children's performance, since it has been found to be related to the achievement of older boys (Toback, 1973).

Method

Thirteen nursery classes which included all English -language classes with male teachers in the city, took part in this study. Letters were sent to the parents of four-year-old children requesting permission to test their children. In five of the classes the children were taught by teams composed of two female teachers while in eight of the classes they were taught by teams composed of one male and one female teacher. All the classes followed essentially similar programs with little emphasis being placed upon the teaching of academic skills. All children were assessed shortly after the start of the school year and again after four months of school attendance. Only children who were assessed twice were retained in the final sample of 109. The subjects were divided into four groups, 28 boys and 34 girls taught by the mixed-sex teams and 27 boys and 20 girls taught by the female teams. The children came from middle-class backgrounds and were matched for maternal employment and family marital status. The children had a mean age of 48.83 months with no significant differences in age occurring among the four groups. The female teachers were significantly older and more experienced than the male teachers; this was consistent for the entire population of nursery school teachers so that the two samples could not be matched for these variables.

Each child was individually assessed by one of four female examiners, with no examiner testing the same child twice. The examiners did not know the hypotheses of the study or the group designations of the children. The subjects were evaluated on the following tests:

1) The Peabody Picture Vocabulary Test (PPVT; Dunn, 1959) was used to equate the four groups of children on I.Q.

2) Three scales from the McCarthy Scales of Children's Abilities (McCarthy, 1972) were combined to assess the children's mathematical achievement. The scales used were Counting and Sorting, Number Questions and Numerical Memory.

3) The Gender Constancy Questionnaire (Slaby & Frey, 1975) was used to assess gender identity. This measure assesses the children's conception of gender stability over time and across situations, classifying responses into five stages of maturity.

4) Subtests from the Animal Crackers Test of Motivation to Achieve (Adkins & Ballif, 1975) assessing self-confidence and school enjoyment were used to evaluate the children's self-concepts and attitudes towards school.

5) The Behavior Rating Scale (BRS), which has been used in previous studies of nursery children (Gold & Andres, in press), was completed by the teachers to describe the children's interaction with other children and with teachers. The rating scales were completed independently by each teacher for every child in their group.

In addition, the teachers were given two measures.

1) They completed the Revised Child Behavior Inventory (RCBI; Hurley & Hohn, 1971), which measures their own tendencies to overprotect, reject, or put

pressure to achieve on children. This measure was used to assess the comparability of teacher attitudes towards child care.

2) The teachers also filled out the Bem Sex-Role Inventory (BSRI; Bem, 1974) to assess teacher sex-role orientation.

The PPVT, mathematical scales and gender-identity measure were administered to the children at the beginning of the school year. The second test battery given four months later repeated the mathematical and gender-identity measures and also included the school enjoyment and self-confidence scales. At this time also, the teachers completed the Behavior Rating Scale, The Revised Child Behavior Inventory and the Bem Sex-role Inventory.

The four groups of children did not differ significantly on intelligence, and the male and female teachers did not differ significantly in their attitudes towards child rearing as assessed by the RCBI. Table 1 gives the mean scores for the children's measures.

Results

The design of the study is a two by two factorial for sex of child and presence of a male teacher in the teaching team, with pre and post-measures for gender concept stage and matehmatical aptitude scores. For the Behavior Rating Scale analysis, the pre and post-measures are replaced by first and second teacher ratings within the same factorial design.

A two-way ANOVA with repeated measures was performed on the boys' and girls' total scores for the mathematical achievement scales. The pre-post difference in scores is significant, F (1,105)= 65.95, $p < .001$. The main effect of the variable sex of child is also significant, F (1,105)= 5.49, $p < .05$,

with the girls attaining higher scores. In addition, there is a triple interaction among the variables sex of child, presence of male teacher and pre-post measure, F (1,105)= 5.48, $p < .05$. Analysis by the Scheffé test of individual comparisons indicates that the four groups do not differ significantly from each other on the pretest and that all four groups improve significantly over the four months, $p < .05$. However, the boys taught by teams with male teachers improve more than the boys taught by teams with all-female teachers, $p < .10$. Girls taught by the all-female teams improve significantly more than boys taught by the female teams, $p < .05$, but do not differ from girls taught by the mixed-sex teams.

Chi square analysis of the Gender Constancy Questionnaire indicates that the girls with the female teaching teams tend to give more mature responses on the first test than the girls with the mixed-sex team, X^2 (1)= 3.32, $p < .10$, but that all groups of children attain a comparably mature level of response on the second testing. There are no significant differences in maturity of gender conception associated with the sex of the teacher.

The ANOVA for the Behavior Rating Scale data indicates a significant main effect for the variable presence of male teacher, F (1,105)= 12.26, $p < .001$. Both boys and girls who have a male teacher are rated significantly more favorably by both male and female members of the teaching team than children taught by the all-female team. In addition, there is a significant teacher effect on the ratings, F (1,105)= 10.10, $p < .01$, with the Scheffé test of individual comparisons indicating that male and female teachers

differ significantly on their ratings of the girls in their groups, $p < .01$. The female teachers of the mixed-sex team describe the behavior of the girls in their classes significantly more favorably than any other set of teachers describe any other group. All other evaluations of the children's groups by members of the same teams do not differ significantly from each other.

Finally, the Animal Crackers subscales indicate that girls tend to enjoy school more F (1,105)= 3.49, $p < .10$, and have greater self-confidence F (1,105) = 3.07, $p < .10$, than boys. The variable of presence of male teacher has no significant effect on the children's scores.

Pearson and Kendall correlation coefficients were calculated for each group of children specifying the relations between the children's measures and the teachers' masculinity, femininity, and androgyny scores derived from the Bem Sex-Role Inventory. The Bonferroni procedure for multiple correlations (Larzelere & Mulaik, 1977) was applied separately for each group. There is no consistent pattern of significant coefficients.

Discussion

The results of the data analysis provide support for two of the study's hypotheses. The boys' mathematical achievement scores improve more and their behavior is evaluated more favorably when they are taught by a teaching team with a male member. The boys' gender identification, self-confidence and enjoyment of school are unaffected. The influence of the male teachers seems limited only to those variables in which the boys are directly instructed, academic performance and classroom behavior, and does not extend to variables on which the teachers have only an indirect influence, gender concept

and attitudes towards self and school. This may be due to the fact that the male teachers were younger and less experienced than their female partners and consequently were perceived by the boys as having less status and power, which might make them less salient as models. In addition, the children had only four months of contact with male teachers in schools that were still predominantly staffed by females.

The more favorable ratings given to both boys and girls taught by a mixed-sex team suggest a complex effect of presence of male teacher on the teachers' perceptions of children's behavior. It is possible that the male teachers were more tolerant of a somewhat different range of behavior than female teachers; the male teachers, for example, appear to have encouraged more rough-housing. Such sanctioning may have lead to consequent changes in the female partner's evaluations of the children's behavior as well as actual changes in the children's behavior. It is unlikely that improved behavior was simply a function of greater compliance with teacher authority since the better ratings were consistent for the child's independent activity and interaction with other children as well as interaction with the teachers.

The absence of significant associations between the teachers' sex-role orientation and the children's performance might be due to two factors. The factors mentioned previously, the male teachers' relative youthfulness and inexperience which would reduce his salience and effectiveness as a model to the boys, might also limit the influence of his sex-role orientation on the children's performance. As well, children at age four might be too young to perceive and be influenced by such a variable.

The girls' advantage over boys in mathematical achievement, self-confidence and school enjoyment is not eliminated by the presence of one male teacher for a four-month period although it does facilitate the boys' mathematical achievement. It is, of course, also possible that the girls' superiority is based upon greater developmental maturity. The sex of the teacher does not influence the girls' scores with the exception of the behavior ratings. This result is consistent with Bayley's hypothesis (1970) that the development of mental abilities in females is more independent of environmental variation than in males. The most favorable ratings of all groups were given to girls by female teachers in the mixed-sex teams. This is an interesting finding, which is difficult to interpret except by very speculative explanations. Observational studies would be useful to clarify this finding.

There are many differences between the present study and that of Brophy and Laosa (1971) which found that boys and girls taught by a female teacher scored lower on spatial ability during the first phase of the study. The most important difference is the number of female and male teacher teams and female control teams used in this study compared to their one mixed-sex team and one female control teacher. In addition, since the male and female team used by Brophy and Laosa were a married couple, they may have been perceived by their students as less differentiated from each other than the male and female teachers in this study were perceived by their students. The results of this study support Brophy and Laosa's conclusion that beneficial effects are attributable to the presence of the male teacher, but such effects appear to be greater than they would predict. At the present time it seems that

firm conclusions about the influence of the teachers' sex on preschool children's development are not tenable, but that the variable is an important one meriting further study.

Footnotes

1 This research was supported by a DGES-FCAC research grant from the Government of Quebec to the first author.

2 Requests for reprints should be sent to Dolores Gold, Psychology Department, Concordia University, 1455 de Maisonneuve Boulevard, Montreal, Quebec, Canada.

TABLE 1

MEAN SCORES FOR CHILDREN MEASURES

	Male/Female Team		Female Team	
n=	Boys 28	Girls 34	Boys 27	Girls 20
Age in Months	47.64	47.79	48.79	52.45
PPVT Scores	48.75	48.61	51.07	50.20
Mathematics (pre-post differences)	3.39	2.20	1.63	3.55
Gender Stage (shift to more mature stage)	18%	23%	14%	5%
Behavior Rating Means (First Teacher)	91.10	92.55	86.11	83.85
Behavior Rating Means (Second Teacher)	93.25	98.58	89.70	86.80
Self-Confidence	8.67	8.85	8.59	9.90
School Enjoyment	7.92	8.29	7.07	8.45

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